

REMARKS

I. General Remarks and Disposition of the Claims

Please consider the application in view of the above claim amendments and following remarks. Applicant thanks the Examiner for his careful consideration of this application, including all of the references that Applicant has submitted in this case.

In the Final Office Action mailed August 4, 2010, all of the pending claims 1, 5-13, 16-18, 20-21, 25-31, 33-43, 45, and 47-75 were rejected under 35 U.S.C. §103(a) as being unpatentable over Clough (U.S. Patent 4,496,388) and Himel et al. (U.S. Patent 4,286,020). Pending claims 1, 5, 8-13, 16-18, 20-21, 25-27, 33-35, 37-43, 45, 47-54, 59-61, 63-64, and 66-75 were also rejected under 35 U.S.C. 103(a) as being unpatentable over Fashui et al. (CN 95102367.5), Xianguo et al. (CN 02117261.7) or Winston et al. (WO 9400986) and Himel et al. (U.S. Patent 4,286,020). Applicant respectfully requests continued examination of the application along with entry of the claim amendments and consideration of the remarks herein, which Applicant believes will place the application in condition for allowance.

II. U.S.C. §103(a) Rejections Over Clough

Claims 1, 5-13, 16-18, 20-21, 25-31, 33-43, 45, and 47-75 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Clough (U.S. Patent 4,496,388). Applicant respectfully disagrees. With respect to this rejection, the Office Action states:

Clough teaches a fungicidal composition comprising metal complex of the compound of formula I (abstract, column 6, lines 14-18). Clough teaches that the composition can comprise additional compounds such as auxins including indoleacetic acid, indole butyric acid, and naphthyacetic acid (column 11 lines 7-39), anionic surfactants including calcium lignosulphonate (column 10 lines 1-18) as well as ingredients such as calcium carbonate (column 9 lines 3-19) Clough teaches that the composition can exist in many forms including aqueous dispersions (column 9 lines 25-68) and as a microcapsule (column 9 lines 45-46). Clough teaches a method of controlling fungi such as phytophthora and rhizoctonia (column 6 lines 39-50) growth on plants such as coffee beans, soya beans and potatoes, i.e. monocots and dicots (column 6 lines 19-36, lines 55-66, column 7 lines 41-64), by applying the composition onto plants and/or their seeds. Clough does not exemplify an invention of controlling fungi by applying a composition comprising metal complex of the compound of formula I, indoleacetic acid, indole butyric acid and calcium lignosulphonate onto plants and/or their seeds. Clough does not teach disclose the microencapsulation involves a resin. However, it would have been obvious to arrive at such an invention since Clough suggests the combination of ingredients to be applied to plants and/or their seeds to control fungi growth. Clough does not teach the

invention of treating onion plants and/or their seeds with the auxin and metal mixture. It would have been obvious to do this since an onion plant is a monocot plant. With respect to encapsulation, it is well known to encapsulate compounds in order to control their release. Clough teaches the encapsulation of fungicides (column 9 lines 45-46). Note, Himel et al. teach the encapsulation of actives using polymers to control their release (abstract, column 2 lines 44-50). It would have been obvious to use the polymer taught by Himel et al. in the microencapsulation taught by Clough to control the release of the actives, insecticides and fungicides.

For at least the following reasons, Applicant respectfully traverses the contention that all pending claims are unpatentable over Clough.

In order for a reference or combination of references to form the basis for a rejection under 35 U.S.C. § 103(a), a *prima facie* case of obviousness must be established. Obviousness is determined by construing the scope of the prior art, identifying the differences between the claims and the prior art, determining the level of skill in the pertinent art at the time of the invention, and considering objective evidence present in the application indicating obviousness or nonobviousness. *Graham v. John Deere*, 383 U.S. 1, 17 (1966). The United States Supreme Court has identified a number of rationales under which a *prima facie* case of obviousness may be established. *See KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398 (2007). Each rational is directed towards identifying known elements of the prior art. *See* MPEP § 2143.

Applicant respectfully submits that due to the differences between the claims, as currently amended, and the cited references, a *prima facie* case of obviousness has not been established. Nevertheless, as stated in MPEP §2145, even if *prima facie* obviousness is established, such obviousness may be rebutted by a showing of unexpected properties or results, which exists in the present case as further described below.

First, Clough neither discloses nor suggests the use of auxins to protect against attack by fungi and insects and their larvae, in the absence of his fungicidal triazole and imidazole compounds. Furthermore, the recitation in the independent claims, prior to current amendment, of “applying a [principal fungi-, insect-] inhibitor...said [principal fungi-, insect-] inhibitor [consisting of, being] at least one plant hormone, said at least one plant hormone including [an, a] [synthetic] auxin” is neither disclosed nor suggested by Clough. Neither is Himel et al. cited for this or similar teaching. While the Office Action states that Clough teaches the use of auxins with triazolylalkanetriols, the Office Action fails to show where in Clough it is disclosed or

suggested that the principal fungi-inhibitor consists of at least one plant hormone including an auxin. The Office Action asserts that statements that a plant hormone, namely an auxin, is the principal inhibitor has no patentable significance, because the Applicant does not demonstrate that the function of the auxin is dependent on the concentration of the auxin. Applicant respectfully disagrees. Furthermore, Applicant disputes that he must demonstrate that the function of the auxin is dependent on the concentration of the auxin. Regardless, Applicant's application teaches the minimization or avoidance of hazardous environmental compounds, such as the triazolylalkanetriols taught by Clough. *Response to Final Office Action, submitted 29 September 2009*. Applicant claims a novel and unobvious method of applying plant hormones including auxins as an environmentally friendly way to control the attack on plants by both flora (fungi and bacteria) and fauna (insects and their larvae). *See id.* The Applicant's specification similarly supports the importance of plant hormones, including auxins, as the principal fungi, insect inhibitor, *e.g.*, at paragraph 0015, "...disease and insect control can be achieved by application of naturally occurring or synthetic auxins or other hormones which will affect the auxin levels without requiring the use of environmentally harmful pesticides." Finally, Applicant's Examples 2-6 teach fungi, insect inhibitors consisting only of plant hormones including auxins. Therefore, while not so required, Applicant demonstrates that the function of the auxin in this case is dependent on the concentration of the auxin.

Notwithstanding the above remarks, Applicant amends the independent claims to recite that the applied plant hormones include at least the auxins indole-3-acetic acid and indole-3-butyric acid. Applicant discloses the use of indole-3-acetic acid and indole-3-butyric acid in all of his Examples 1-6. Clough does not teach or suggest that both indole-3-acetic acid and indole-3-butyric acid be used in combination as a plant growth regulator. Furthermore, there would be no motivation to use two auxins in combination, since only one auxin would be necessary if used for the purpose cited in Clough of plant growth regulation.

Second, Applicant respectfully disagrees with the Office Action's contention that the auxin disclosed in Clough should automatically function in Clough and in the instant claims in the same way. The Office Action provides no evidence for this assertion. Rather, this argument impermissibly uses hindsight that has been attained solely as a result of Applicant's disclosures in the instant application. Clough simply does not disclose a principal fungi, insect inhibitor consisting of plant hormones including auxins. Clough only discloses that auxin may optionally

be used as a plant growth regulating compound—not to inhibit fungi or insects, principally or otherwise. Especially noteworthy is that none of the seven examples disclosed in Clough for the inhibition of the growth of disease organisms employs auxin or any other specifically disclosed plant growth regulating compound. Furthermore, Applicant's claimed method of applying a principal fungi, insect inhibitor consisting of plant hormones including auxins yields an unexpected result—thereby rebutting any determination of *prima facie* obviousness. As stated in *Aventis Pharma Deutschland v. Lupin*, 499 F.3d 1293, 84 U.S.P.Q.2d 1197 (Fed. Cir. 2007),

Once such a *prima facie* case is established, it falls to the applicant or patentee to rebut it, for example with a showing that the claimed compound has unexpected properties. *Dillon*, 919 F.2d at 692.

The analysis is similar where, here, a claimed composition is a purified form of a mixture that existed in the prior art. Such a purified compound is not always *prima facie* obvious over the mixture; for example, *it may not be known that the purified compound is ... an active ingredient of the mixture...*” (emphasis added).

The same principle applies here. Applicant claims the application of a principal fungi-, insect-inhibitor *consisting of* plant hormones including auxins, said auxins including at least indole-3-acetic acid and indole-3-butyric acid. Therefore, Applicant's independent claims may, as suggested by the Office Action, be analogously viewed as claiming the application of a more purified compound (*i.e.*, a principal fungi-, insect- inhibitor consisting of plant hormones including auxins) from a prior art mixture, *i.e.*, triazolylalkanetriols (as a hazardous inhibitor), and optionally, an auxin (as a plant growth regulators). However, Clough only discloses that auxin may be used as a plant growth regulating compound—not to inhibit fungi or insects. The instant Office Action and previous Office Actions have cited no teaching in Clough that plant hormones including auxins were known to be the active ingredient(s) in fungi and insect inhibition. Likewise, no other reference, including Himel et al., has been cited for this proposition. Thus, Applicant's claimed method of applying a principal fungi, insect inhibitor consisting of plant hormones including auxins yields an unexpected result—the inhibition of fungi/insects. Therefore, the application of a principal fungi, insect-inhibitor *consisting of* plant hormones including auxins, would not be *prima facie* obvious in view of the principal triazole and imidazole compounds of Clough.

Third, the cited portions of Clough disclosed in the Office Action fail to teach or suggest each and every claim limitation of the above-referenced claims, as required to show *prima facie* obviousness. See *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974) (stating that to

establish *prima facie* obviousness of a claimed invention, all the claimed features must be taught or suggested by the prior art). As the Board of Patent Appeal and Interferences has confirmed, a proper obviousness determination requires that “[w]hen determining whether a claim is obvious, an examiner must make ‘a searching comparison of the claimed invention – *including all its limitations* – with the teaching of the prior art.’” *In re Wada and Murphy*, BPAI Appeal 2007-3733 (Jan. 14, 2008), citing *In re Ochiai*, 71 F.3d 1565, 1572 (Fed. Cir. 1995) (emphasis added). Independent claims 33 and 51 and their respective dependent claims recite a method of “applying an insect-inhibitor...said insect-inhibitor [consisting of, being] plant hormone including auxins, said auxins including at least indole-3-acetic acid and indole-3-butyric acid” Independent claim 54 and its dependent claims are similarly amended. Clough neither discloses nor suggests that a plant hormone including an auxin may be used for protecting plants from attack by insects and their larvae. Clough, at col. 10, ll. 44-48, states that compositions of his invention can comprise compounds having insecticidal activity and, at col. 11, ll. 11-12, states that such “suitable insecticides are Pirimor, Croneton, dimethoate, Metasystox, and formothion.” But, this statement by Clough *effectively teaches away*, because one of ordinary skill in the art would not be motivated to apply the optional, Clough-described plant growth regulator—auxin—as an insect-inhibiting component, but rather would be motivated to use one of the “suitable insecticides” actually taught by Clough for this purpose. Thus, Clough cannot reasonably be interpreted to disclose the aforementioned feature of independent claims 33, 51, 54, and their respective dependent claims. Therefore, these claims are patentably distinct over Clough and should be allowed, because it would not have been obvious to one of ordinary skill in the art to apply plant hormones including auxins as an insect-inhibitor.

Fourth, all of the independent claims have now been amended to recite a range of application rates for the applied auxins. The Office Action fails to cite any passage in Clough where the claimed auxin application rates are disclosed or suggested. Furthermore, the Office Action fails to cite any passage in Clough that would motivate one of ordinary skill in the art to apply auxins in the range of application rates claimed. Similarly, dependent claim 17 recites that the metal is present in a range of about 0.001 to about 5.0 percent-by-weight. The Office Action cites Clough at col. 10, ll. 1-18 for teaching calcium lignosulphonate and Clough at col. 9, ll. 3-19 for teaching calcium carbonate. However, neither of these passages describes the metal application rate range claimed in dependent claim 17. The Office Action admits that Clough is

silent to auxin application rate ranges and metal concentrations ranges. Nevertheless, the Office Action states that “it would have been expected that any application rate of auxin and any metal concentration range would have been effective when combined with triazolyalkanetriols absent a showing of unexpected results for the claimed auxin application rates and metal concentration ranges.” Applicant has previously shown that the application of a principal fungi, insect inhibitor consisting of plant hormones including auxins yields unexpected results. The Office Action provides no support for its assertion that “any application rate of auxin and metal concentration range would have been effective” if the principal fungi, insect inhibitor consists of plant hormones including auxins, as claimed. Without such support, this assertion is simply impermissible hindsight that has been attained solely as a result of Applicant’s disclosures in the instant application. Furthermore, the Federal Circuit has stated that “rejections on obviousness cannot be sustained with mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” MPEP §2142 (citing *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006)). Because the Office Action does not provide any articulated reasoning for the rejection of the claims having the auxin and metal application rate limitations, Applicant respectfully requests that such rejection over Clough be withdrawn.

As admitted in the Office Action and previously stated herein, Clough neither discloses nor suggests the use of auxins to protect against attack by fungi and insects and their larvae, in the absence of his fungicidal triazole and imidazole compounds. Furthermore, Clough neither discloses nor suggests the claimed use of plant hormones including auxins as the principal inhibitor for controlling the attack of fungi and of insects and their larvae on plants. In the absence of any such teaching, motivation, or suggestion by Clough, the rejection of the pending claims as being unpatentably obvious over Clough must be withdrawn.

For the above stated reasons, Applicant respectfully submits that the independent claims, 1, 25, 28, 33, 51, 54, 60 and 68, and their dependent claims, as amended, are patentably distinct over Clough and respectfully requests that the present rejections under 35 U.S.C. §103 be withdrawn.

III. U.S.C. §103(a) Rejections Over Fashui et al., Xianguo et al. or Winston et al.

Claims 1, 5, 8-13, 16-18, 20-21, 25-27, 33-35, 37-43, 45, 47-54, 59-61, 63-64 and 66-75 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Fashui et al. (CN

95102367.5), Xianguo et al. (CN 02117261.7) or Winston et al. (WO 9400986) and Himel et al. (U.S. Patent 4,286,020). Applicant respectfully disagrees. With respect to this rejection, the Office Action states:

Fashui et al. teach a composite containing of a calcium compound and indolebutyric acid. Fashui et al. teach a method of applying the composite as a seed dressing for wheat and corn crop (abstract).

Xianguo et al. teach a composition containing indolebutyric acid. Xianguo et al. teach calcium dodecylbenzene sulfonate (page 6 of the English translation) can be added to the composition. Xianguo et al. teach a method of applying the composition to crop seed (abstract, claims 1 and 6).

Winston et al. teach a composition containing indolebutyric acid (page 7 lines 16-21). Winston et al. teach calcium carbonate (page 8 lines 21-28). Winston et al. teach a method of applying the composition to crop seed or roots (abstract, claims 1 and 6).

None of the cited references exemplify an invention specifically comprising indolebutyric acid and a metal compound such as a calcium compound, the instant calcium concentration, the application rate of auxin or the control of insects or fungi. None of the references teach the encapsulation of agricultural actives. Himel et al. teach the encapsulation of agricultural actives using polymers to control their release (abstract, column 2 lines 44-50). It would have been obvious to one having ordinary skill in the art to arrive at an invention comprising indolebutyric acid and a calcium compound. One would have been motivated to do this since the references suggest the combination. It is obvious that the combination would have been effective at controlling insects and fungi since both the prior art and instant claims disclose the same active step, i.e. treating plant seeds or roots with a formulation comprising indolebutyric acid and the calcium compound. With respect to auxin application rate ranges and metal concentration ranges recited in dependent claims, the references do not disclose the instant auxin application rate ranges as well as metal concentration ranges. For this reason, it would have been expected that any application rate of auxin and any metal concentration range would have been effective when combined with triazolylalkanetriols absent a showing of unexpected results for the claimed auxin application rates and metal concentration ranges.

For at least the following reasons, Applicant respectfully traverses the contention that pending claims are unpatentable over Fashui et al. (CN 95102367.5), Xianguo et al. (CN 02117261.7) or Winston et al. (WO 9400986) and Himel et al.

In order for a reference or combination of references to form the basis for a rejection under 35 U.S.C. § 103(a), a *prima facie* case of obviousness must be established. Obviousness is determined by construing the scope of the prior art, identifying the differences between the claims and the prior art, determining the level of skill in the pertinent art at the time of the invention, and considering objective evidence present in the application indicating obviousness

or nonobviousness. *Graham v. John Deere*, 383 U.S. 1, 17 (1966). The United States Supreme Court has identified a number of rationales under which a *prima facie* case of obviousness may be established. See *KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398 (2007). Each rational is directed towards identifying known elements of the prior art. See MPEP § 2143.

Applicant respectfully submits that due to the differences between the claims, as currently amended, and the cited references, a *prima facie* case of obviousness has not been established. Nevertheless, as stated in MPEP §2145, even if *prima facie* obviousness is established, such obviousness may be rebutted by a showing of unexpected properties or results, which exists in the present case as previously described.

First, Fashui et al., Xianguo et al. and Winston et al. neither disclose nor suggest the use of auxins to protect against attack by fungi and insects and their larvae. The recitation in the independent claims of “applying a [principal fungi-, insect-] inhibitor...said [principal fungi-, insect-] inhibitor [consisting of, being] plant hormones including auxins, said auxins including at least indole-3-acetic acid and indole-3-butyric acid” is neither disclosed nor suggested by these cited references. Furthermore, as discussed above in relation to Clough, Applicant’s claimed method of applying a principal fungi, insect inhibitor consisting of plant hormones including auxins yields an unexpected result—thereby rebutting any determination of *prima facie* obviousness. The Office Action has cited no teaching in Fashui et al, Xianguo et al. or Winston et al. that plant hormones including auxins were known to inhibit fungi and insects. No other reference, including Himel et al., has been cited for this proposition. Therefore, the application of a principal fungi, insect-inhibitor consisting of plant hormones including auxins, would not be *prima facie* obvious in view of Fashui et al., Xianguo et al. or Winston et al.

Second, each of the independent claims has now been amended to recite a specific range of application rates for the applied auxins, which is “an amount effective to inhibit fungi growth [infestation by said insects and larvae] but wherein said amount is insufficient to negatively effect growth of said plant tissues.” The Office Action fails to cite any passage in Fashui et al., Xianguo et al. or Winston et al. where the claimed auxin application rates are disclosed or suggested. Furthermore, the Office Action fails to cite any passage in Fashui et al., Xianguo et al. or Winston et al. that would motivate one of ordinary skill in the art to apply auxins in the range of application rates claimed. Himel et al. is not cited for this teaching. Moreover, in the absence of any teaching in Fashui et al., Xianguo et al. or Winston et al. that plant hormones

including auxins may be used to inhibit fungi and insects, one of ordinary skill in the art would be unable to, and lack any motivation to, experiment to determine an amount effective to inhibit fungi growth or infestation by insects and larvae. The Office Action admits that with respect to auxin application rates ranges and metal concentration ranges recited in the dependent claims, the references do not disclose the instant auxin application rates or metal concentration ranges. However, the Office Action incorrectly argues that “it would have been expected that any application rate of auxin and any metal concentration range would have been effective *when combined with triazolylalkanetriols...*” (emphasis added). This argument relates to Clough and not to Fashui et al., Xianguo et al., or Winston et al. Therefore, because the Office Action does not provide any articulated reasoning for the rejection of the claims having the auxin and metal application rate limitations, Applicant respectfully requests that such rejection over Fashui et al., Xianguo et al., and Winston et al. be withdrawn.

IV. No Waiver

All of Applicant’s arguments and amendments are without prejudice or disclaimer. Additionally, Applicant has merely discussed example distinctions from the cited references. Other distinctions may exist, and Applicant reserves the right to discuss these additional distinctions in a later Response or on Appeal, if appropriate. By not responding to additional statements made by the Examiner, Applicant does not acquiesce to the Examiner’s additional statements, such as, for example, any statements relating to what would be obvious to a person of ordinary skill in the art.

IV. Claim Amendments and New Claims

Independent claims 1, 25, 28, 33, 51, 54, 60, and 68 have each been amended to recite that the plant hormones include at least the auxins indole-3-acetic acid and indole-3-butyric acid. Each of the independent claims has also been amended to recite the rate of auxin application. Claims 76-100 are new claims that are respectfully requested to be entered. These new claims are patentable over the cited references at least by virtue of their dependence from independent claims shown to be patentable over the cited references. The claim amendments are not believed to add any new matter. Unless explicitly indicated, it should not be assumed that the amendments made herein were made for reasons related to patentability.

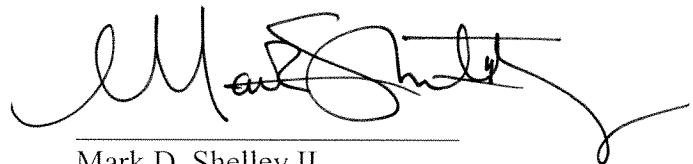
V. Request for Extension of Time/Authorization to Charge Deposit Account for Any Required Fees

Applicant herewith petitions the Director of the USPTO to extend the time for reply to the Office Action mailed August 4, 2010 for three (3) months. Applicant believes that this response is timely submitted under 37 C.F.R. §1.7 with the payment for a three month extension of time of \$555. If, however, any additional extension of time and/or fees are deemed required, the USPTO is hereby authorized to charge any fees which should have been filed herewith to our Deposit Account 50-0897 (SOR028/189341) from which the undersigned is authorized to draw.

VI. Conclusion

In the present response, Applicant submits that the now pending claims 1, 9-12, 16-18, 20-21, 25-26, 28, 31, 33, 38, 42-43, 45, 47-52, 54, 57-58, 60, 63-69 and 71 are patentably distinct over Clough, as well as Fashui et al., Xianguo et al., or Winston et al., as cited in the previous Office Action. Therefore, Applicant respectfully requests the allowance of pending claims 1, 9-12, 16-18, 20-21, 25-26, 28, 31, 33, 38, 42-43, 45, 47-52, 54, 57-58, 60, 63-69 and 71 as well as new dependent claims 76-100.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Mark D. Shelley II', written over a horizontal line.

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